

REMARKS

This responds to the Office Action mailed on 7 August 2006.

Claims 1, 13, and 20 and withdrawn claims 26 and 40 are amended, no claims are canceled, and no claims are added; as a result, claims 1-51 and 79-91 are now pending in this application with claims 1-25 and 79-91 currently pending examination. The amendments to the claims are fully supported by the specification as originally filed. No new matter is introduced. Applicant respectfully requests reconsideration of the above-identified application in view of the amendments above and the remarks that follow.

Support for the amendments to claims may be found in the specification, for example, on page 5, lines 12-13.

Comment

Applicant does not agree with one or more comments in the Response to Arguments section of the instant Office Action. However, Applicant has limited the discussion of the traversal of the Office Action rejections to such discussion as is necessary to efficiently expedite the prosecution of the abovementioned application.

First §102 Rejection of the Claims

Claims 1-8, 10, 11, 13-25, and 79-91 were rejected under 35 U.S.C. § 102(b) for anticipation by Rose (U.S. 4,543,486). Applicant traverses these grounds of rejection of these claims.

Applicant cannot find in Rose a disclosure, a teaching, or a suggestion of a method that includes activating a gas to deposit a material on the substrate by irradiating the gas with electromagnetic energy at a frequency tuned to an absorption frequency of the gas corresponding to a bond energy of the gas, as recited in claim 1. Applicant submits that Rose does not teach the identical invention in as complete detail as is contained in claim 1 and that claim 1 is patentable over Rose.

For at least reasons similar to those discussed above with respect to claim 1, Applicant submits that independent claims 13 and 20 are patentable over Rose. Claims 2-8, 10, and 11, claims 14-19, and claims 21-25 depend on claims 1, 13, and 20, respectively. Applicant submits

that claims 2-8, 10, 11, and 14-19, and 21-25 are patentable over Rose for at least the reasons stated herein.

Applicant cannot find in Rose a disclosure, a teaching, or a suggestion of a diode laser array or sourcing electromagnetic energy from a diode laser of a diode laser array, where the diode laser array has at least one diode laser with a center frequency different from that of another diode laser of the laser array as recited in independent claim 79. In the Office Action with respect to Rose, it is stated that “[c]olumn 5, lines 20-60, and column 7, lines 3-32, read on the limitations of the dependent claims, including the raster scanning, laser array, and diode lasers.” Applicant cannot in Rose column 5, lines 20-60 and column 7, lines 3-32 a discussion of an array of diode lasers or a discussion of using an array of diode lasers. Applicant submits that Rose does not teach each and every claim element of claim 79, that Rose does not teach the identical invention in as complete detail as is contained in claim 79, and that Rose does not teach each and every claim element arranged as in claim 79.

Thus, Applicant submits that Rose does not anticipate claim 79 and that claim 79 is patentable over Rose for at least the reasons stated above. Additionally, claims 80-91 depend on claim 79 and are patentable over Rose for at least the reasons stated above with respect to claim 79.

Applicant respectfully requests withdrawal of these rejections of claims 1-8, 10, 11, 13-25, and 79-91, and reconsideration and allowance of these claims.

Second §102 Rejection of the Claims

Claims 1, 2, 5-11, 13, 16-19, and 79-91 were rejected under 35 U.S.C. § 102(b) for anticipation by Schachameyer et al. (U.S. 4,940,505). Applicant traverses these grounds of rejection of these claims for at least the reasons made of record.

Applicant cannot find in Schachameyer et al. (hereafter Schachameyer) a disclosure, a teaching, or a suggestion of a method that includes activating a gas to deposit a material on the substrate by irradiating the gas with electromagnetic energy at a frequency tuned to an absorption frequency of the gas corresponding to a bond energy of the gas, as recited in claim 1. Applicant submits that Schachameyer does not teach the identical invention in as complete detail as is contained in claim 1 and that claim 1 is patentable over Schachameyer.

For at least reasons similar to those discussed above with respect to claim 1, Applicant submits that independent claims 13 is patentable over Schachameyer. Claims 2, 5-11 and claims 16-19 depend on claims 1 and 13, respectively. Applicant submits that claims 2, 5- 11, and claims 16-19 are patentable over Schachameyer for at least the reasons stated herein.

Applicant cannot find in Schachameyer a disclosure, a teaching, or a suggestion of a diode laser array or sourcing electromagnetic energy from a diode laser of a diode laser array, where the diode laser array has at least one diode laser with a center frequency different from that of another diode laser of the laser array as recited in independent claim 79. In the Office Action with respect to Schachameyer, it is stated that “[a]ll other limitations are taught in column 4, lines 30-61.” Applicant cannot in Schachameyer column 4, lines 30-61 a discussion of an array of diode lasers or a discussion of using an array of diode lasers. Applicant submits that Schachameyer does not teach each and every claim element of claim 79, that Schachameyer does not teach the identical invention in as complete detail as is contained in claim 79, and that Schachameyer does not teach each and every claim element arranged as in claim 79.

Thus, Applicant submits that Schachameyer does not anticipate claim 79 and that claim 79 is patentable over Schachameyer for at least the reasons stated above. Additionally, claims 80-91 depend on claim 79 and are patentable over Schachameyer for at least the reasons stated above with respect to claim 79.

Applicant respectfully requests withdrawal of these rejections of claims 1, 2, 5-11, 13, 16-19, and 79-91, and reconsideration and allowance of these claims.

First §103 Rejection of the Claims

Claim 12 was rejected under 35 U.S.C. § 103(a) as being unpatentable over Rose (U.S. 4,543,486) in view of Applicant’s admitted prior art. Applicant traverses these grounds of rejection of these claims.

Claim 12 depends on claim 1. As noted above, claim 1 is patentable over Rose. Applicant submits that claim 12 is patentable over Rose for at least the reasons stated herein.

In the Office Action, it is stated that “[r]educing energy demands by using a laser as the source of energy would be applicable to both ALD and CVD.” Applicant notes that CVD precursors are not necessarily appropriate for an ALD process and, therefore, applying laser

techniques to a CVD process as used in the cited prior art may not necessarily be applicable to an ALD process. Further, applying laser techniques to a precursor that may be used in both CVD and ALD processes may not be appropriate for the ALD process, for example, in a case where the absorption of energy provided by the laser affects the chemisorption of the desired compound on the substrate surface. The chemisorption features of ALD are not typically a factor in a CVD process. Applicant submits that the statement provided in the Office Action is a general statement that is not directed at claim 12 taken as a whole.

Applicant respectfully requests withdrawal of these rejections of claim 12, and reconsideration and allowance of this claim.

Second §103 Rejection of the Claims

Claim 12 was rejected under 35 U.S.C. § 103(a) as being unpatentable over Schachameyer et al. (U.S. 4,940,505) in view of Applicant's admitted prior art. Applicant traverses these grounds of rejection of these claims.

Claim 12 depends on claim 1. As noted above, claim 1 is patentable over Schachameyer. Applicant submits that claim 12 is patentable over Schachameyer for at least the reasons stated herein.

In the Office Action, it is stated that “[r]educing energy demands by using a laser as the source of energy would be applicable to both ALD and CVD.” Applicant notes that CVD precursors are not necessarily appropriate for an ALD process and, therefore, applying laser techniques to a CVD process as used in the cited prior art may not necessarily be applicable to an ALD process. Further, applying laser techniques to a precursor that may be used in both CVD and ALD processes may not be appropriate for the ALD process, for example, in a case where the absorption of energy provided by the laser affects the chemisorption of the desired compound on the substrate surface. The chemisorption features of ALD are not typically a factor in a CVD process. Applicant submits that the statement provided in the Office Action is a general statement that is not directed at claim 12 taken as a whole.

Applicant respectfully requests withdrawal of these rejections of claim 12, and reconsideration and allowance of this claim.

AMENDMENT AND RESPONSE UNDER 37 CFR § 1.116 – EXPEDITED PROCEDURE

Serial Number: 10/683,806

Filing Date: October 10, 2003

Title: LASER ASSISTED MATERIAL DEPOSITION

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Dkt: 303.8651US1

Withdrawn Claims

Withdrawn independent claims 26 and 40 are amended in line with the amendments to claim 1. Applicant submits that the withdrawn claims include features additional to features of claim 1 and are linked to claim 1. With the allowance of claim 1, Applicant respectfully requests the rejoinder and allowance of claims 26-51. *See M.P.E.P. 809 and 821.04.*

CONCLUSION

Applicant respectfully submits that the claims are in condition for allowance and notification to that effect is earnestly requested. The Examiner is invited to telephone Applicant's attorney (612) 371-2157 to facilitate prosecution of this application.

If necessary, please charge any additional fees or credit overpayment to Deposit Account No. 19-0743.

Respectfully submitted,

ROSS S. DANDO ET AL.

By their Representatives,

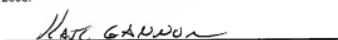
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Date 9 October 2006

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CERTIFICATE UNDER 37 CFR 1.8: The undersigned hereby certifies that this correspondence is being filed using the USPTO's electronic filing system EFS-Web, and is addressed to: Commissioner of Patents, P.O. Box 1450, Alexandria, VA 22313-1450 on this 9 day of October 2006.


Name


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